

## AHXAMK-WP 19/33 (36) kV 1-core

Medium voltage cable

19/33 (36) kV



### Application

DryRex Nordic Wind cables are designed especially to meet the requirements of 36 kV wind farms. May be buried directly in soil, also by ploughing. Cable is longitudinally and radially watertight and therefore it is suitable where wet soil and / or fresh water permanently occurs. Installations must be in accordance with national regulations and rules of installations. The cable is halogen-free, but without fire protection. The cable is not CPR-classified.

### Design

<b>Standards</b>	HD 620 10 F, SFS 5636
<b>Conductor</b>	Watertight, circular, stranded aluminium EN/IEC 60228 class 2
<b>Conductor screen</b>	Semiconducting cross-linked polyethylene XLPE
<b>Insulation</b>	Cross-linked polyethylene XLPE
<b>Insulation screen</b>	Semiconducting cross-linked polyethylene XLPE
<b>Inner covering</b>	Semiconducting waterswellable tape against longitudinal water penetration
<b>Metal screen</b>	Polyethylene laminated aluminium foil, which acts also as a radial water barrier
<b>Oversheath</b>	UV-protected PE-plastic PELLD, Black
<b>Longitudinal watertightness</b>	Semiconducting water swellable tape

### Temperature limits

<b>Max. conductor temperature °C</b>	90
<b>Max. cond. temp. short circuit max. 5 s °C</b>	250
<b>Min. cable temperature during operation °C</b>	-50
<b>Min. cable temperature during handling °C</b>	-20
<b>Min. cable temperature during transport °C</b>	-40

Technical information	1x95	1x150	1x240	1x300	1x400	1x500	1x630	1x800	1x1000
<b>Product code</b>	<b>1181861</b>	<b>1181877</b>	<b>1181879</b>	<b>1181880</b>	<b>1181881</b>	<b>1181882</b>	<b>1181883</b>	<b>1181884</b>	<b>1181885</b>
Nominal cross-sectional area of conductor mm <sup>2</sup>	95	150	240	300	400	500	630	800	1000
Nominal diameter of conductor mm	11,1	13,9	17,8	19,8	22,4	25,7	29,3	33,3	37,8
Nominal thickness of conductor screen mm	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5
Nominal thickness of insulation mm	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0
Nominal diameter over the insulation without insulation screen mm	26,7	29,5	33,6	35,4	38,0	41,3	45,2	49,1	55,0
Nominal thickness of insulation screen mm	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5
Nominal thickness of PE-laminated aluminium foil mm	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3
Nominal thickness of oversheath mm	3,0	3,1	3,2	3,3	3,0	3,1	3,2	3,3	3,5
(A1-A3) GWP emission kgCO <sub>2</sub> e/km						18683	22787	26936	32942
Nominal cable diameter mm	35,250	38,250	42,400	44,550	46,600	50,100	54,050	58,300	64,600
Nominal cable weight kg/km	1104,231	1361,017	1780,918	2046,097	2255,536	2743,037	3338,408	4030,355	4811,553
Nominal weight of aluminium kg/m	0,244	0,381	0,631	0,806	0,960	1,298	1,718	2,204	2,826
<b>Maximum forces during installation when pulling by</b>									
Max. pulling force by pulling-eye kN	2,9	4,5	7,2	9,0	12,0	15,0	18,9	20,0	20,0
Max. pulling force by pulling-stocking kN	1,4	2,3	3,6	4,5	6,0	7,5	8,5	8,5	8,5
<b>Minimum bending radii</b>									
During handling and installation, cable cm	53	57	64	67	70	75	81	87	97
In final installation, cable cm	37	40	45	47	49	53	57	61	68
<b>Minimum bending radii</b>									
During handling and installation, cable m	0,53	0,57	0,64	0,67	0,70	0,75	0,81	0,88	0,97
In final installation, cable m	0,37	0,40	0,45	0,47	0,49	0,53	0,57	0,61	0,68
<b>DC resistance</b>									
Max. DC resistance of conductor at 20 °C Ω/km	0,320	0,206	0,125	0,100	0,0778	0,0605	0,0469	0,0367	0,0291
Nominal DC resistance of PE-laminated aluminium foil 20 °C Ω/km	1,02	0,93	0,81	0,78	0,75	0,68	0,64	0,58	0,52
<b>AC resistance of phase conductor, screen circuit closed</b>									
Conductor temperature 40 °C Ω/km	0,3460	0,2229	0,1356	0,1088	0,0850	0,0666	0,0522	0,0416	0,0338
Conductor temperature 65 °C Ω/km	0,3782	0,2436	0,1482	0,1188	0,0927	0,0726	0,0568	0,0451	0,0366
Conductor temperature 70 °C Ω/km	0,3846	0,2478	0,1507	0,1208	0,0943	0,0738	0,0577	0,0458	0,0371
Conductor temperature 90 °C Ω/km	0,4104	0,2644	0,1607	0,1288	0,1005	0,0786	0,0614	0,0487	0,0394
<b>Inductance per phase</b>									
In flat formation, free space between cables equal to one cable diam	0,60	0,57	0,54	0,53	0,51	0,50	0,49	0,48	0,48
In trefoil formation, cables touching each other mH/km	0,41	0,39	0,36	0,35	0,33	0,32	0,31	0,30	0,29

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Technical information	1x95	1x150	1x240	1x300	1x400	1x500	1x630	1x800	1x1000
<b>Electrical values</b>									
Calculated operation capacitance $\mu\text{F}/\text{km}$	0,16	0,18	0,22	0,24	0,26	0,29	0,32	0,36	0,41
Calculated charging current with main voltage $\text{A}/\text{km}$	0,9	1,1	1,3	1,4	1,5	1,7	1,9	2,1	2,4
Calculated earth fault current with main voltage $\text{A}/\text{km}$	2,8	3,3	4,0	4,2	4,6	5,2	5,8	6,4	7,3
<b>Current ratings</b>									
<b>Cables in air (25 °C)</b>									
Flat, conductor 90 °C, open screen A	320	425	570	650	790	920	1040	1220	1390
Flat, conductor 90 °C, closed screen A	310	395	515	580	680	755	840	950	1060
Trefoil, conductor 90 °C, open screen A	285	380	505	580	695	800	915	1045	1170
Trefoil, conductor 90 °C, closed screen A	280	370	490	565	680	775	880	1010	1130
<b>Cables in the ground (15 °C and 1,0 K.m/W), Installation depth 0,7 m</b>									
Flat, conductor 65 °C, open screen A	255	330	435	485	570	645	720	805	900
Flat, conductor 65 °C, closed screen A	250	315	395	440	500	550	610	650	700
Flat, conductor 90 °C, open screen A	300	390	510	570	670	760	850	950	1067
Flat, conductor 90 °C, closed screen A	295	370	465	515	590	650	715	841	922
Trefoil, conductor 65 °C, open screen A	240	305	395	445	525	590	665	725	800
Trefoil, conductor 65 °C, closed screen A	235	300	385	435	510	570	635	695	760
Trefoil, conductor 90 °C, open screen A	280	360	465	525	615	695	780	863	968
Trefoil, conductor 90 °C, closed screen A	275	355	455	510	600	670	745	845	940
<b>Maximum thermal short circuit current during 1 s</b>									
Phase (initial 90 °C, final 250 °C) kA	8,9	14,1	22,6	28,3	37,8	47,2	59,5	75,6	94,5
Metal screen (initial 35 °C, final 250 °C) kA	4,8	5,2	6,0	6,2	6,4	7,1	7,6	8,3	9,3
Metal screen (initial 60 °C, final 250 °C) kA	4,4	4,8	5,5	5,7	5,9	6,6	7,0	7,7	8,6
Metal screen (initial 85 °C, final 250 °C) kA	4,0	4,4	5,0	5,2	5,4	6,0	6,4	7,0	7,8